

## Claims

- [c1] 1. A method for non-invasively profiling, using the  $C/V$  technique, carrier concentration in a wafer including an In-containing-compound semiconductor surface layer, wherein the carrier concentration profiling method includes: contacting a liquid electrode superficially on the wafer; and employing an applied voltage being up to a voltage surpassing 10V to profile the wafer's  $C/V$  characteristics without using photo-etching.
- [c2] 2. The carrier concentration profiling method set forth in claim 1, wherein an aqueous EDTA solution is utilized as the liquid electrode.
- [c3] 3. The carrier concentration profiling method set forth in claim 2, wherein the aqueous EDTA solution contains 80% or more EDTA.
- [c4] 4. The carrier concentration profiling method set forth in claim 1, wherein liquid titanium is utilized as the liquid electrode.
- [c5] 5. The carrier concentration profiling method set forth in claim 1, wherein a metal Ga melt is utilized as the liquid electrode.
- [c6] 6. A method for profiling, using the  $C/V$  technique, carrier concentration in a wafer including an In-containing-compound semiconductor surface layer, wherein the carrier concentration profiling method includes: superficially contacting the wafer with and thereafter solidifying a metal Ga melt, to form a metal Ga electrode; employing an applied voltage, being up to a voltage surpassing 10V, to profile carrier concentration; and subsequent to the profiling, melt-clearing the metal Ga electrode.
- [c7] 7. A compound semiconductor wafer including an In-containing-compound semiconductor surface layer, wherein carrier concentration in the wafer is non-invasively profiled, whereby its carrier concentration having been non-invasively profiled the wafer can be employed as it is for device processing.
- [c8] 8. A compound semiconductor wafer including an In-containing-compound semiconductor surface layer, wherein carrier concentration in the wafer is non-

invasively profiled according to the method set forth in claim 1, whereby its carrier concentration having been non-invasively profiled the wafer can be employed as it is for device processing.

- [c9] 9. A compound semiconductor wafer including an In-containing-compound semiconductor surface layer, wherein carrier concentration in the wafer is non-invasively profiled according to the method set forth in claim 2, whereby its carrier concentration having been non-invasively profiled the wafer can be employed as it is for device processing.
- [c10] 10. A compound semiconductor wafer including an In-containing-compound semiconductor surface layer, wherein carrier concentration in the wafer is non-invasively profiled according to the method set forth in claim 3, whereby its carrier concentration having been non-invasively profiled the wafer can be employed as it is for device processing.
- [c11] 11. A compound semiconductor wafer including an In-containing-compound semiconductor surface layer, wherein carrier concentration in the wafer is non-invasively profiled according to the method set forth in claim 4, whereby its carrier concentration having been non-invasively profiled the wafer can be employed as it is for device processing.
- [c12] 12. A compound semiconductor wafer including an In-containing-compound semiconductor surface layer, wherein carrier concentration in the wafer is non-invasively profiled according to the method set forth in claim 5, whereby its carrier concentration having been non-invasively profiled the wafer can be employed as it is for device processing.
- [c13] 13. A compound semiconductor wafer including an In-containing-compound semiconductor surface layer, wherein carrier concentration in the wafer is non-invasively profiled according to the method set forth in claim 6, whereby its carrier concentration having been non-invasively profiled the wafer can be employed as it is for device processing.